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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,506	10/20/2003	Huajie Chen	FIS920030241US1	4303
7590 05/17/2005			EXAMINER	
McGuireWoods LLP			BEREZNY, NEMA O	
Suite 1800			ART UNIT	
1750 Tysons Boulevard			PAPER NUMBER	
McLean, VA 22102			2813	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EF

Office Action Summary	Application No.		Applicant(s)	
	10/689,506		CHEN ET AL.	
	Examiner		Art Unit	
	Nema O. Berezny		2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-12 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10202003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-18 in the reply filed on 2-18-05 is acknowledged. Cancellation of claims 19-21 is also acknowledged; claims 1-18 remain pending.

Drawings

Applicant's formal drawings, filed on 3-16-04 are acceptable to Examiner, and have been entered.

Claim Objections

Claim 5 is objected to because of the following informalities: line 2 after "second", insert --layer-- thereto. Appropriate correction is required.

Claim 7 is objected to because of the following informalities: line 3 after "regions of the", delete "pFET" and insert --nFET-- thereto. Appropriate correction is required.

Claim 13 is objected to because of the following informalities: line 6 after "structure and growing the", delete "first" and insert --second-- thereto. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-15 recite the limitation "the insulation layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 5, 8, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Said claims state that the first layer of material and the second layer of material are formed or grown at a thickness of about between 10 to 100 nm. However, it is not clear if each of the layers is 10 to 100 nm, or if both layers together are 10 to 100 nm. Correction is required.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Said claim states that the first layer and second layer of material are "embedded in the layer." It is unclear what "the layer" is referring to. Correction is required.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to

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identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 12 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 11. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 10-12, 14-15, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Ouyang et al. (2004/0256614).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Ouyang discloses a method of manufacturing a semiconductor structure, comprising the steps of: forming a p-type field-effect-transistor (pFET) channel and a n-type field-effect-transistor (nFET) channel in a substrate (p.3 para.50); forming a pFET stack in the pFET channel and an nFET stack in the nFET channel (p.3 para.50); providing a first layer of material at source/drain regions associated with the pFET stack, the first layer of material having a lattice constant different than a base lattice constant of the substrate to create a compressive state within the pFET channel (p.2 para.22); and providing a second layer of material at the source/drain regions associated with the nFET stack, the second layer of material having a lattice constant different than the base lattice constant of the substrate to create a tensile state at the nFET channel (p.2 para.22) **[claims 1, 12]**. Ouyang also discloses etching regions of the pFET structure and the nFET structure (p.4 para.55); and doping source and drain regions of the nFET and pFET structures (p.4 para.56) **[claim 10]**.

Based upon the rejection of claims 1 and 10 above, Ouyang also discloses wherein the first layer of material is SiGe having a content of Ge approximately greater than 0% in ratio to Si (Ouyang – claim 6) **[claims 2, 17]**; wherein the second layer of material is Si:C (p.2 para.22) **[claims 3, 11]**; wherein the Si:C has a content of C of about 4% or less (p.2 para.22) **[claim 4]**; wherein the first material and the second material are embedded in the insulation layer (p.2 para.12) **[claim 14]**; wherein the first

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material and the second material are raised above a surface of the insulation layer (p.2 para.12) **[claim 15]**; and further comprising the step of in situ doping the first material with p-type doping and the second material with n-type doping to form the source and drain regions of the pFET and nFET, respectively (p.4 para.56) **[claim 18]**.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter for claims 5-9, 13, and 16: the prior art of record does not teach or disclose or make obvious a first or second layer of material as claimed in claims 1 or 10 between 10 to 100 nm; or placing a mask over the nFET channel and etching the pFET regions, and placing a mask over the pFET channel and etching the nFET regions; or providing a protection layer under the mask. Ouyang is silent as to any first or second layer thickness, or specific masking procedures. Since Ouyang only qualifies under 102(e) as prior art, and Ouyang and instant application have the same assignee, Ouyang cannot be used in a rejection under 35 USC 103(a).

As allowable subject matter has been indicated for claims 5, 7-9, 13, and 16, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Claims 5-9, 13, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

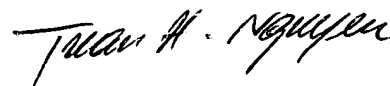
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O. Berezny whose telephone number is (571) 272-1686. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB



Tuan H. Nguyen
Primary Examiner